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WAR DEPARTMENT TECHNICAL MANUAL

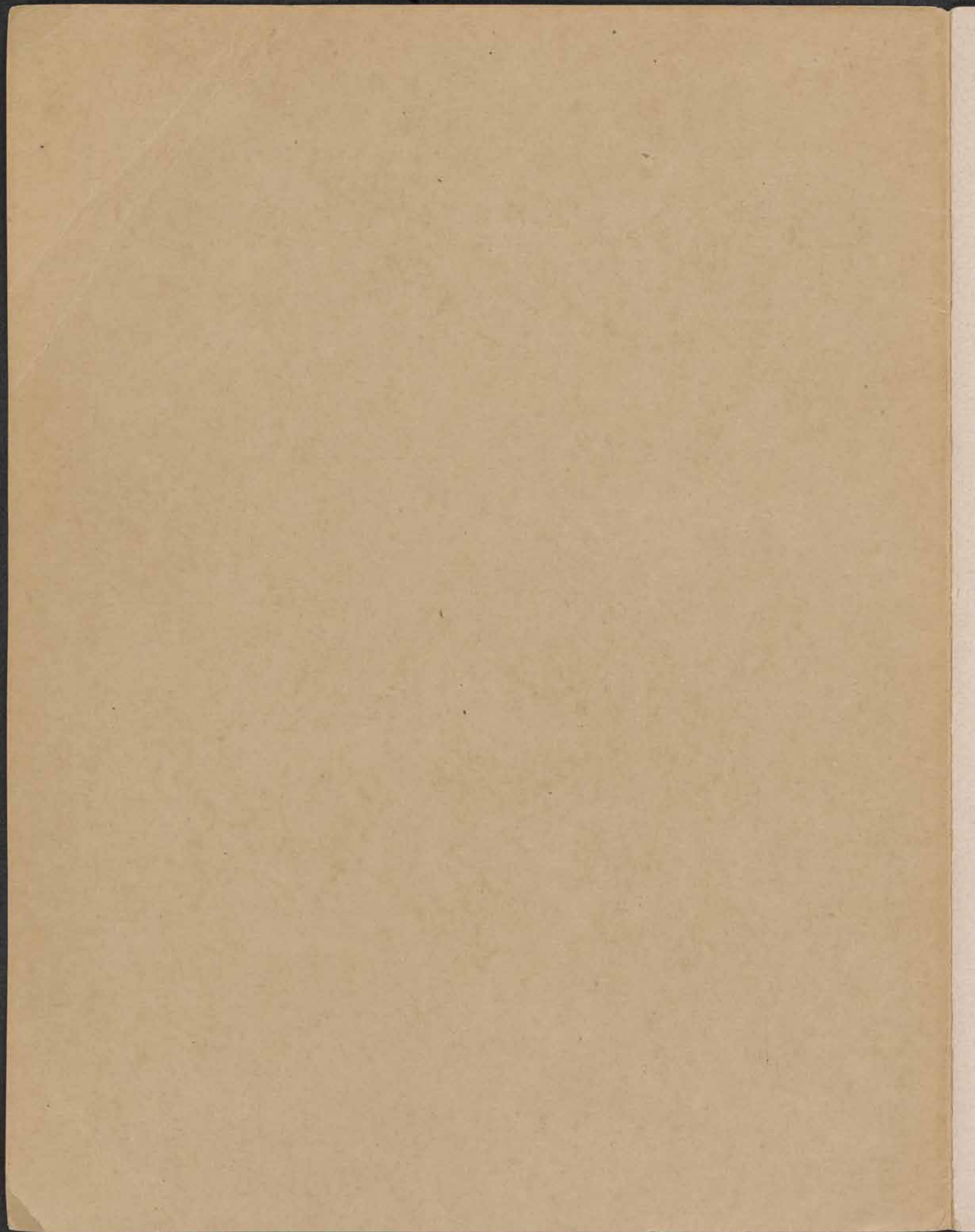
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**BARRACKS PORTABLE
SECTIONAL ALL WOOD
INSULATED**

PROCEDURE FOR ERECTING

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PROCEDURE FOR ERECTING



WAR DEPARTMENT

20 JUNE 1944

WAR DEPARTMENT,
WASHINGTON 25, D. C., 20 June 1944.

The 5-9601, Barracks, Portable, Sectional, All Wood, Insulated, Procedure for Erecting, is published for the information and guidance of all concerned.

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(For explanation of symbols, see FM 21-6).

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SECTION I

PACKING LISTS

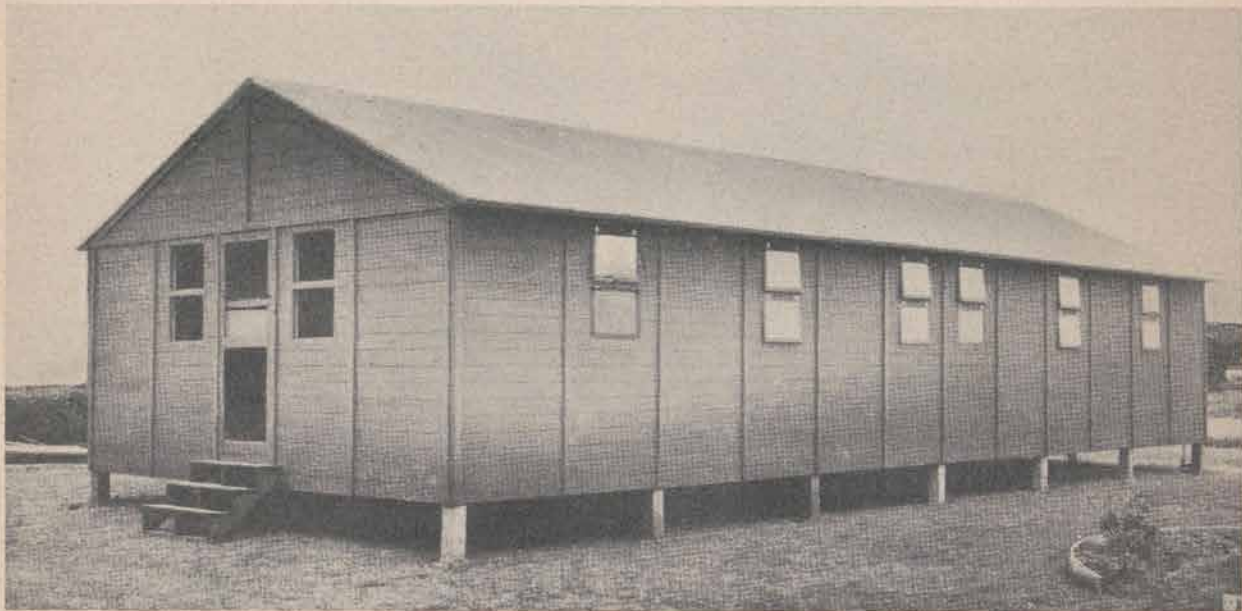


Figure 1. Exterior view of completed 20- by 48-foot basic building.

DESCRIPTION OF BUILDING

The complete basic building 20 by 48 feet is contained within the 48 packages ready for erection by following the erection procedure. The completed building is a wood building resting on wood posts supporting wood sills. These sills carry the floor panels which are prefabricated complete in units or sections of approximately 4- by 8-foot size. The side walls, end walls, and gables are also prefabricated in complete units. Some units are blank or completely covered with siding and others having the windows set in place. The screening is on the interior and is packaged separately. The

roof units or panels are supported by trusses, the members of which are distributed in several of the roof packages and are ready for erection. The roof covering is of a rolled roofing type and must be applied separately. The building is easily dismantled at the panel points by cutting the roofing between the panels. On reerection, 8-inch strips of the extra roofing are applied over the cuts. This building is also expandable by the use of additional units packaged separately comprising of B units 8 by 20 feet (blank panels and window panels) and C units 8 by 20 feet (side panels with doors) whichever may be required.

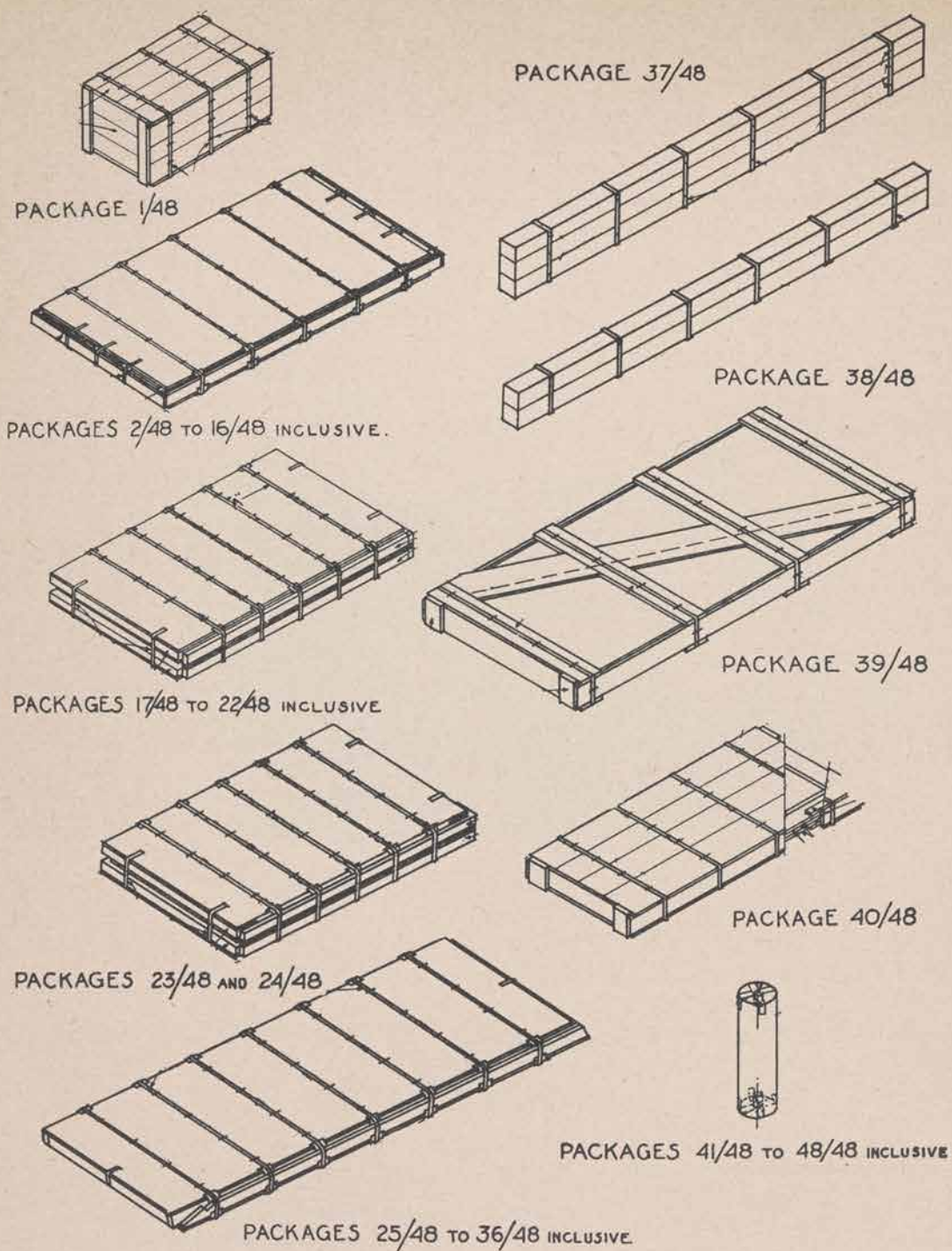


Figure 2. Package shapes—basic building, 20 by 48 feet.

MASTER PACKING LIST

Number of packages	Package mark	Quantity	Contents	Cubic feet	Approximate weight
1	1/48	14	1/2 by 7-1/2-in. machine bolts and nuts	11.5	400 lb.
		240	1/2 by 4-in. machine bolts and nuts		
		72	1/2 by 5-1/2-in. machine bolts and nuts		
		652	1/2-in. cut washers		
		15 lb.	20d D. H. nails		
		12 lb.	16d D. H. nails		
		17 lb.	8d D. H. nails		
		8 lb.	16d common nails		
		5 lb.	8d common nails		
		5 lb.	8d C' S' G nails		
		16	1-1/2-in. hook and eyes		
		3 pr.	3-1/2 by 3-1/2-in. butts, door hinges		
		2	Mortise lock and knobs		
		1 qt.	Can sealer		
		2	Erection instructions		
		4 lb.	Roofing nails		
		4 pt.	Roofing cement		
1	2/48	2	F Floor panels	13	344 lb.
		2	S-3 Stair stringer		
		6	SK-1 Skirting		
1	3/48	2	F Floor panels	13	344 lb.
		1	S-3 Stair stringer		
		6	SK-1 Skirting		
		4	S-4 Stair tread		
1	4/48	2	F Floor panels	13	344 lb.
		9	SK-1 Skirting		
		4	S-4 Stair tread		
		3	B-1 Batten		
1	5/48	2	F Floor panels	13	344 lb.
		3	SK-1 Skirting		
		24	B-1 Battens		
1	6/48	2	F Floor panels	13	344 lb.
		2	G-8 Plates		
		4	B-4 Batten		
		11	B-1 Batten		
1	7/48	2	F Floor panels	13	344 lb.
		6	G-8 Plates		
1	8/48	2	F Floor panels	13	344 lb.
		6	G-8 Plates		
1	9/48	2	F Floor panels	13	344 lb.
		3	G-8 Plates		
		2	G-5 Plates		
		1	RB-1 Ridge board		
		2	G-3 Plates		

Number of packages	Package mark	Quantity	Contents	Cubic feet	Approximate weight
1	10/48	2	F Floor panels	13	344 lb.
		2	D-1 Door jamb		
		6	C Eave closure		
1	11/48	2	F Floor panels	13	344 lb.
		2	D-1 Door jamb		
		6	C Eave closure		
1	12/48	2	F Floor panels	13	344 lb.
		4	RB-2 Ridge board		
1	13/48	2	F Floor panels	13	344 lb.
1	14/48	2	F Floor panels	13	344 lb.
1	15/48	2	F Floor panels	13	344 lb.
1	16/48	2	F Floor panels	13	344 lb.
1	17/48	2	W-1 Wall panel	22	400 lb.
		2	W-2 Wall panel		
		6	H-1 Sole plate		
		1	A Sill strap		
		2	MS Mud sill		
1	18/48	2	W-1 Wall panel	22	400 lb.
		2	W-2 Wall panel		
		11	H-1 Sole plates		
		2	A Sill strap		
1	19/48	2	W-1 Wall panel	22	400 lb.
		2	W-2 Wall panel		
		3	A Sill strap		
		4	S Window screens		
1	20/48	2	W-1 Wall panel	22	400 lb.
		2	W-2 Wall panel		
		4	S Window screens		
1	21/48	2	W-1 Wall panel	22	400 lb.
		2	W-2 Wall panel		
		4	S Window screens		
1	22/48	2	W-1 Wall panel	22	400 lb.
		2	W-2 Wall panel		
		4	S Window screens		
1	23/48	2	W-2 Wall panels	23	420 lb.
		2	W-3 Wall panels		
		7	H-1 Sole plate		
		4	H-2 Sole plate		
1	24/48	2	W-2 Wall panel	23	420 lb.
		2	W-3 Wall panel		
		4	H-1 Sole plate		
1	25/48	2	R Roof panel	23.2	520 lb.
		4	S-1 Floor joist		
		16	T-2 Tie		
1	26/48	2	R Roof panels	23.2	520 lb.
		4	S-1 Floor joist		
		6	T-2 Tie		
1	27/48	2	R Roof panels	23.2	520 lb.
		4	S-1 Floor joist		

Number of packages	Package mark	Quantity	Contents	Cubic feet	Approximate weight
1	28/48	2	R Roof panel	23.2	520 lb.
		2	S-1 Floor joist		
		4	S-5 Floor sill		
1	29/48	2	R Roof panel	23.2	520 lb.
		8	S-5 Floor sill		
1	30/48	2	R Roof panel	23.2	520 lb.
		10	T-1 Tie		
		4	S-2 Floor sill		
1	31/48	2	R Roof panel	23.2	520 lb.
		12	T-5 Tie connector		
		8	S-2 Floor sill		
1	32/48	2	R Roof panel	23.2	520 lb.
		4	SK-2 Skirting		
		12	T-1 Tie		
		4	SK-3 Skirting		
1	33/48	2	R Roof panel	23.2	520 lb.
		10	F-1 Floor filler		
		4	RK Rake board		
		1	RB-3 Ridge board		
		4	KB Rake batten		
		22	T-4 Tie connector		
1	34/48	2	R Roof panels	23.2	520 lb.
		32	SS Screen stop		
		2	B-3 Batten		
		2	D-2 Door head		
		2	D-3 Door sill		
		4	F-2 Floor filler		
		12	T-6 Tie		
		4	B-2 Batten		
		10	T-3 Tie		
1	35/48	2	R Roof panel	23.2	520 lb.
1	36/48	2	R Roof panel	23.2	520 lb.
1	37/48	3	P-1 Foundation post	7.6	339 lb.
1	38/48	2	P-2 Foundation post	5.1	226 lb.
1	39/48	4	G Gable panels	30.8	340 lb.
1	40/48	2	D Doors	11.94	200 lb.
1	41/48	1	2 squares roofing	1.8	114 lb.
1	42/48	1	2 squares roofing	1.8	114 lb.
1	43/48	1	2 squares roofing	1.8	114 lb.
1	44/48	1	2 squares roofing	1.8	114 lb.
1	45/48	1	2 squares roofing	1.8	114 lb.
1	46/48	1	2 squares roofing	1.8	114 lb.
1	47/48	1	2 squares roofing	1.8	114 lb.
1	48/48	1	1 square roofing	1.7	57 lb.
Total				732.64	17,000 lb.

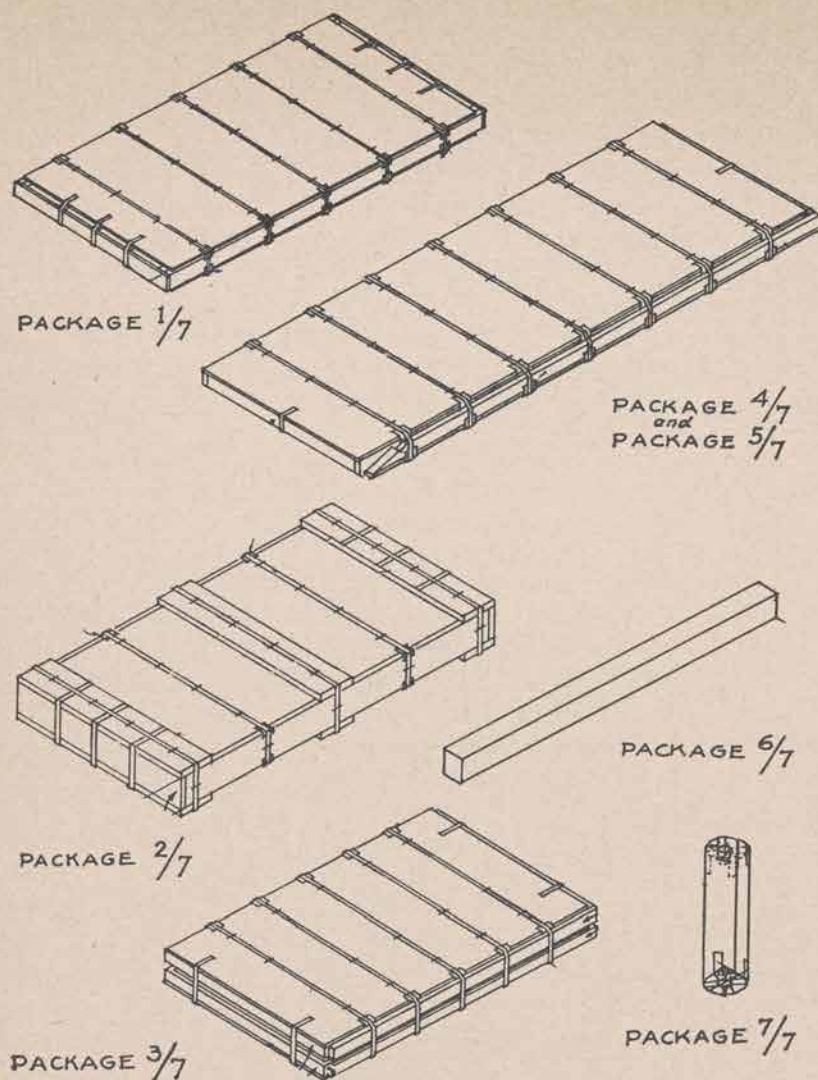


Figure 3. Package shapes—building unit "B" 8 by 20 feet.

PACKING LIST

"B" UNIT

Number of packages	Package mark	Quantity	Contents	Cubic feet	Approximate weight
1	1/7	2	F Floor panels	13	350 lb.
		2	1/2 by 7-1/2-in. machine bolts and nuts		
		13	1/2 by 5-1/2-in. machine bolts and nuts		
		40	1/2 by 4-in. machine bolts and nuts		
		110	1/2-in. cut washers		
		2 lb.	20d D. H. nails		
		2 lb.	16d D. H. nails		
		2 lb.	8d D. H. nails		
		1 lb.	16d common nails		
		1 lb.	8d common nails		
		1 lb.	8d C' S' G nails		
		2	1-1/2-in. hooks and eyes for screen		
1	2/7	3	F Floor panels	27.7	585 lb.
		4	B-1 Batten		
		2	C Eave closure		
		3	G-8 Plates		
		1	RB-2 Ridge board		
		4	SK-1 Skirting		
		1	A Sill strap		
1	3/7	2	W-1 Wall panels	22	400 lb.
		2	W-2 Wall panels		
		4	H-1 Sole plates		
		2	S Window screens		
1	4/7	2	R Roof panels	23.2	520 lb.
		2	F-1 Floor filler		
		2	S-1 Floor joist		
		4	T-1 Tie		
1	5/7	2	R Roof panels	23.2	520 lb.
		2	S-2 Floor sill		
		2	S-5 Floor sill		
		4	T-2 Tie		
		2	T-3 Tie connector		
		4	T-4 Tie connector		
		2	T-5 Tie connector		
		2	T-6 Tie connector		
		4	SS Screen stop		
1	6/7	1	P Foundation post	1.6	70 lb.
1	7/7	1	2 squares roofing	1.8	114 lb.
			Total	112.5	2,559 lb.

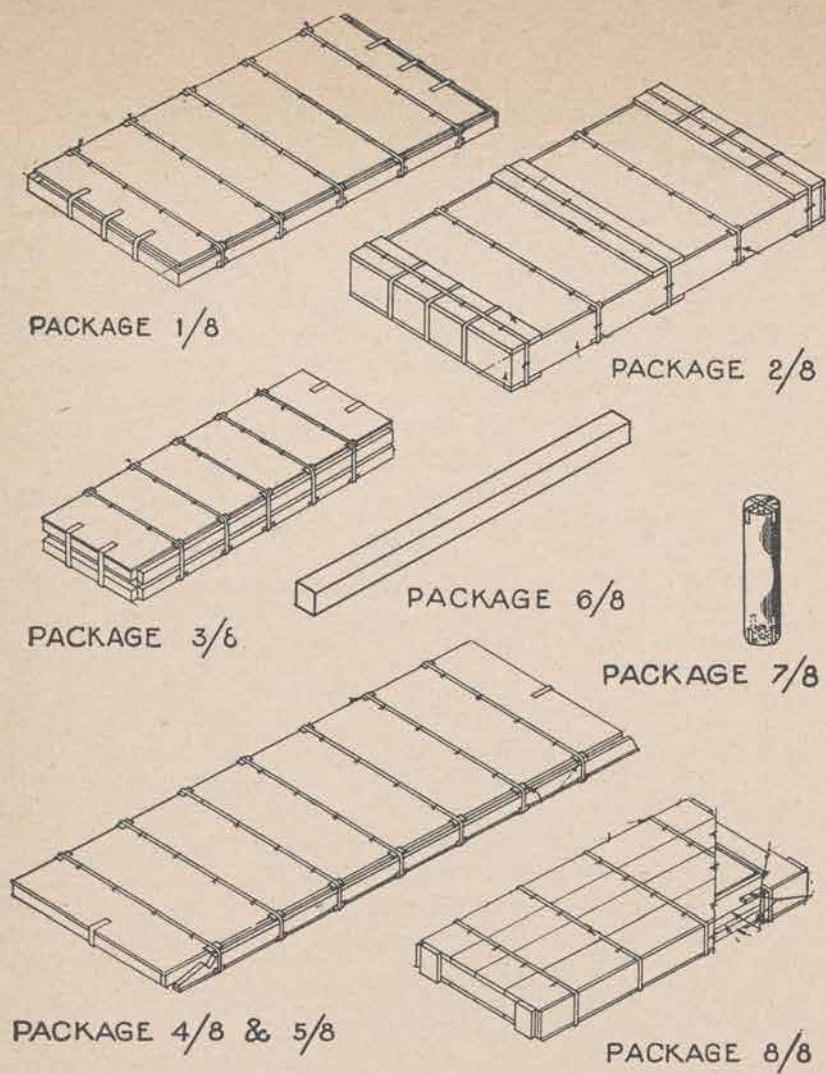


Figure 4. Package shapes—building unit "C" 8 by 20 feet.

PACKING LIST

"C" UNIT

Number of packages	Package mark	Quantity	Contents	Cubic feet	Approximate weight
1	1/8	2	F Floor panels	13	350 lb.
		13	1/2 by 5-1/2-in. machine bolts and nuts		
		36	1/2 by 4-in. machine bolts and nuts		
		98	1/2-in. cut washers		
		2 lb.	20d D. H. nails		
		2 lb.	16d D. H. nails		
		2 lb.	8d D. H. nails		
		2 lb.	16d common nails		
		1 lb.	8d common nails		
		3 pr.	3-1/2 by 3-1/2-in. butts		
		2	Mortise lock sets		
1	2/8	3	F Floor panels	27.7	585 lb.
		3	S-3 Stair stringer		
		8	S-4 Stair tread		
		1	A Sill strap		
		2	B-1 Batten		
		2	B-5 Batten		
		4	B-6 Batten		
		2	C Eave closure		
		3	G-8 Plates		
		1	RB-2 Ridge board		
		2	SK-1 Skirting		
		2	SK-4 Skirting		
1	3/8	2	W4R Wall panels	13.5	250 lb.
		2	W4L Wall panels		
		4	H-3 Sole plates		
		2	D-5 Door sill		
		2	MS Mud Sill		
1	4/8	2	R Roof panels	23.2	520 lb.
		2	F-1 Floor filler		
		2	S-1 Floor joist		
		4	T-1 Tie		
		2	D-4 Door head		
1	5/8	2	R Roof panels	23.2	520 lb.
		2	S-2 Floor sill		
		2	S-5 Floor sill		
		4	T-2 Tie		
		2	T-3 Tie connector		
		4	T-4 Tie connector		
		2	T-6 Tie connector		
1	6/8	1	P Foundation post	1.6	70 lb.
1	7/8	1	2 squares roofing	1.8	114 lb.
1	8/8	2	D-1 Doors	12.7	210 lb.
			Total	116.7	2,619 lb.

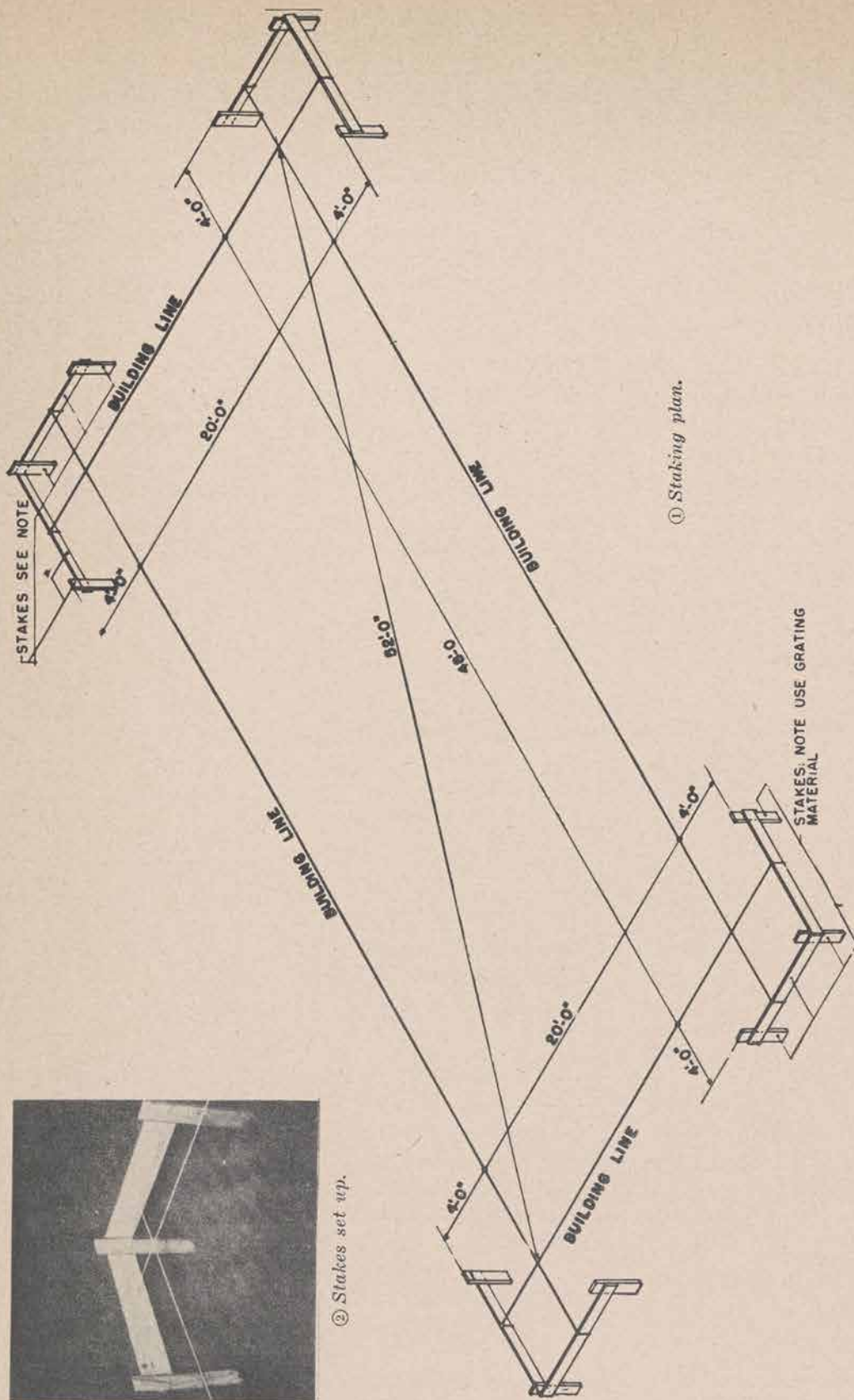


Figure 5. Stakes.

SECTION II

ERECTION PROCEDURE

1. Materials

Check with shipping list to be certain that the entire 48 packages are available for immediate use. (Refer to Master Packing List.)

2. Foundation (refer to figures 5 and 6)

a. Lay out foundation as shown in foundation plan, figure 5①, using transit or steel tapes. Be sure that the layout is square.

b. The batter boards can be adjusted to the desired grade of the top of the posts with a level or transit. None of the posts should be less than 12 inches above the ground line. If no transit or level is available, the posts can be set to grade with a 10-foot straight edge and a spirit level (see fig. 5②).

c. Sufficient 6- by 6-inch timber is supplied to make twenty-seven 18-inch posts. This will be sufficient only if the barrack is set on level ground. If the barrack is to be set on a slope, additional timber is required for posts. Any post which stands over 2 feet above the ground line should be buried at least 18 inches. If no 6- by 6-inch timber is available, 2- by 6-inch lumber can be laminated to form a 6- by 6-inch post. The laminated posts should be used on the high side of the slope.

d. After all posts have been cut to the length and set in place, check for line, square, and level (see fig. 6②).

3. Sills (refer to fig. 3)

a. Place main lateral sills, "S-1," across building over posts 8 foot on centers; nail through lap on center posts with 20d doublehead nails; tie sills to post with a 2- by 2-inch scab, using 16 double-head nails.

b. Place longitudinal outside sills "S-2," tying sills to posts with 2- by 2-inch scab, nailing to

ends of "S-1" sills with 16d common nails and toenails, to posts, using 20d double-head nails. Be sure that sill is placed so that 2- by 2-inch ledge in center is in position to carry sill "S-5."

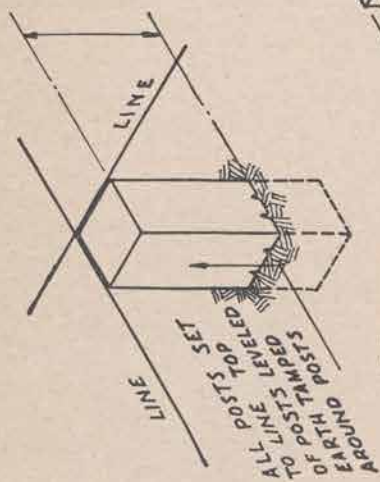
c. Place intermediate lateral sills, "S-5," across building, centered between sills "S-1," lap over center posts, nailing through lap with double-head nails. Apply 2- by 2-inch scab for tying to posts, using 16d double-head nails. Fasten outside ends by nailing through face of "S-2" sill into ends of "S-5" sill, using 16d common nails.

d. Check structure for level and line. Check position of tops of posts in relation to sills. All outside posts must be flush with sills.

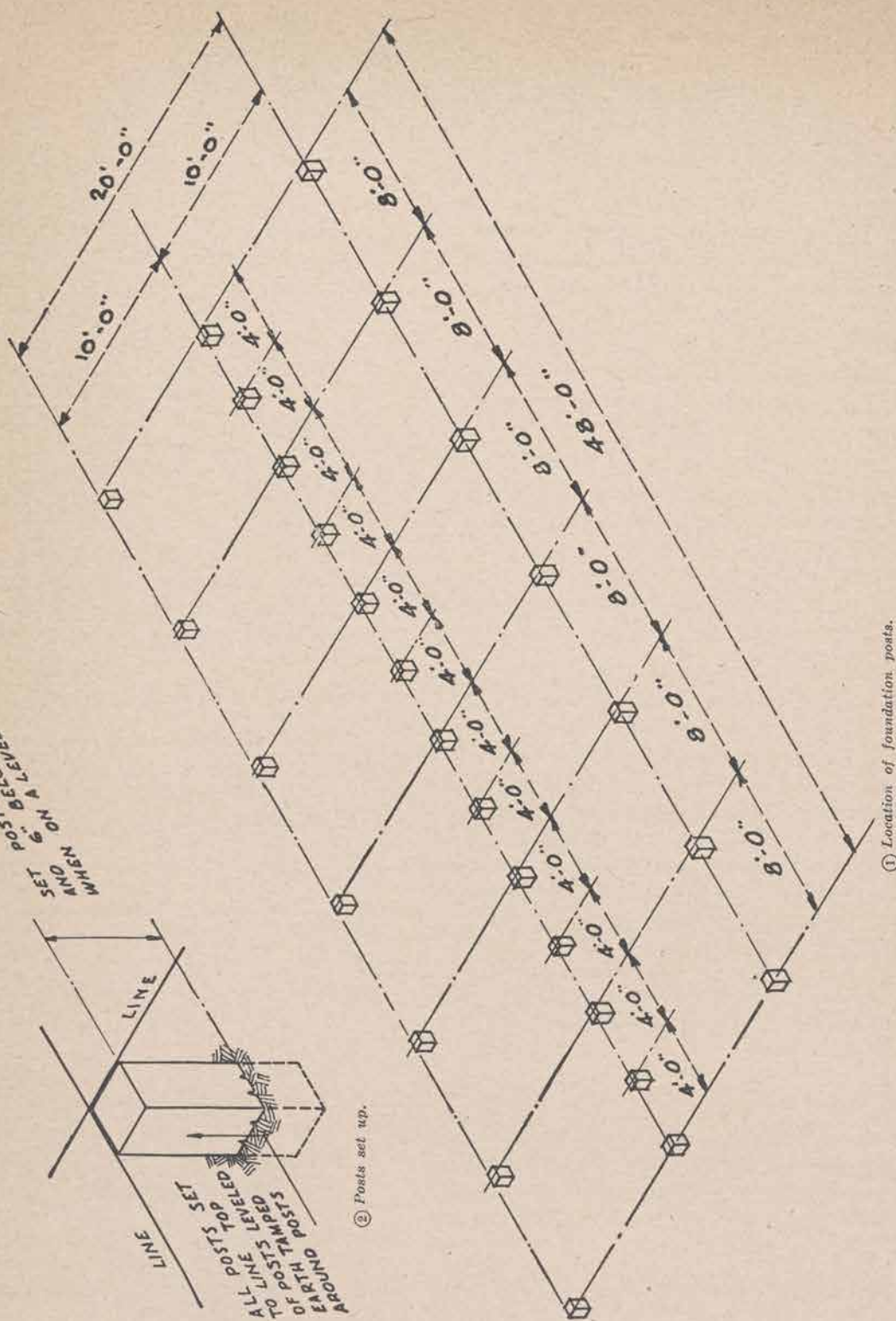
4. Floor (refer to fig. 8)

a. Start placing floor panels across building, working from one corner of the building and extending full width of building. Bolt these sections together using 4-inch bolts with washers. After this 8- by 20-foot section has been bolted together, shift section in place. The sides of the section must be flush with the sills. The ends of the floor joists must be flush with end sills and lap over one-half of the center sill. Assemble additional floor sections. Shift into place so that the ends of the floor joists on the first section and ends of the floor joists on the second section meet. All other sections are assembled and placed in same manner. Tie floor to sills by using metal crating band as is shown on figure 8① and ②.

b. After floor is in place and tied down, apply floor fillers, "F-1," for interior, and "F-2" for building ends. Fit fillers to properly close opening between finished floor sections at panel ends; nail through to joist with 8d common nails.



② Posts set up.



① Location of foundation posts.

Figure 6. Posts.

CHECK LEVEL OF SILLS BEFORE
PLACING FLOOR PANELS.

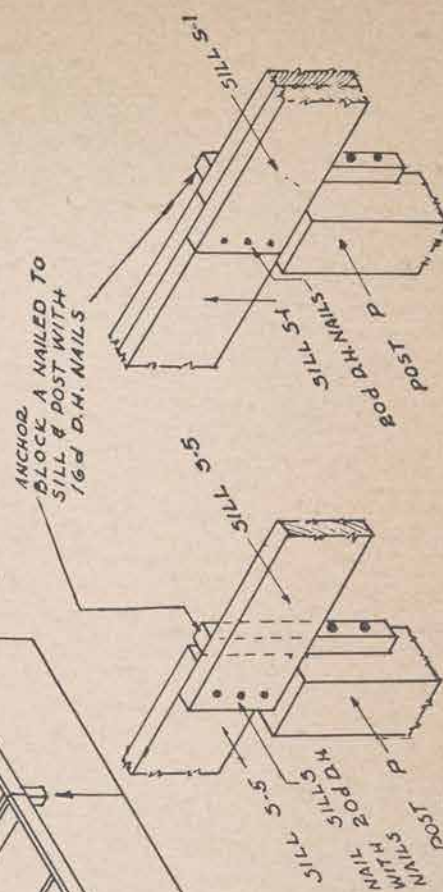
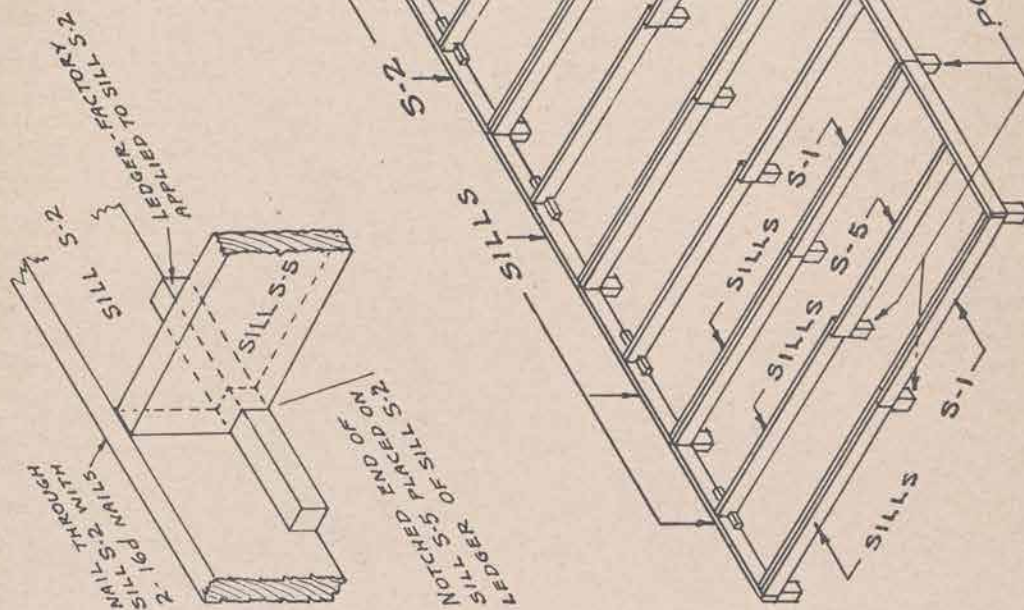


Figure 7. Floor sills placed on posts.

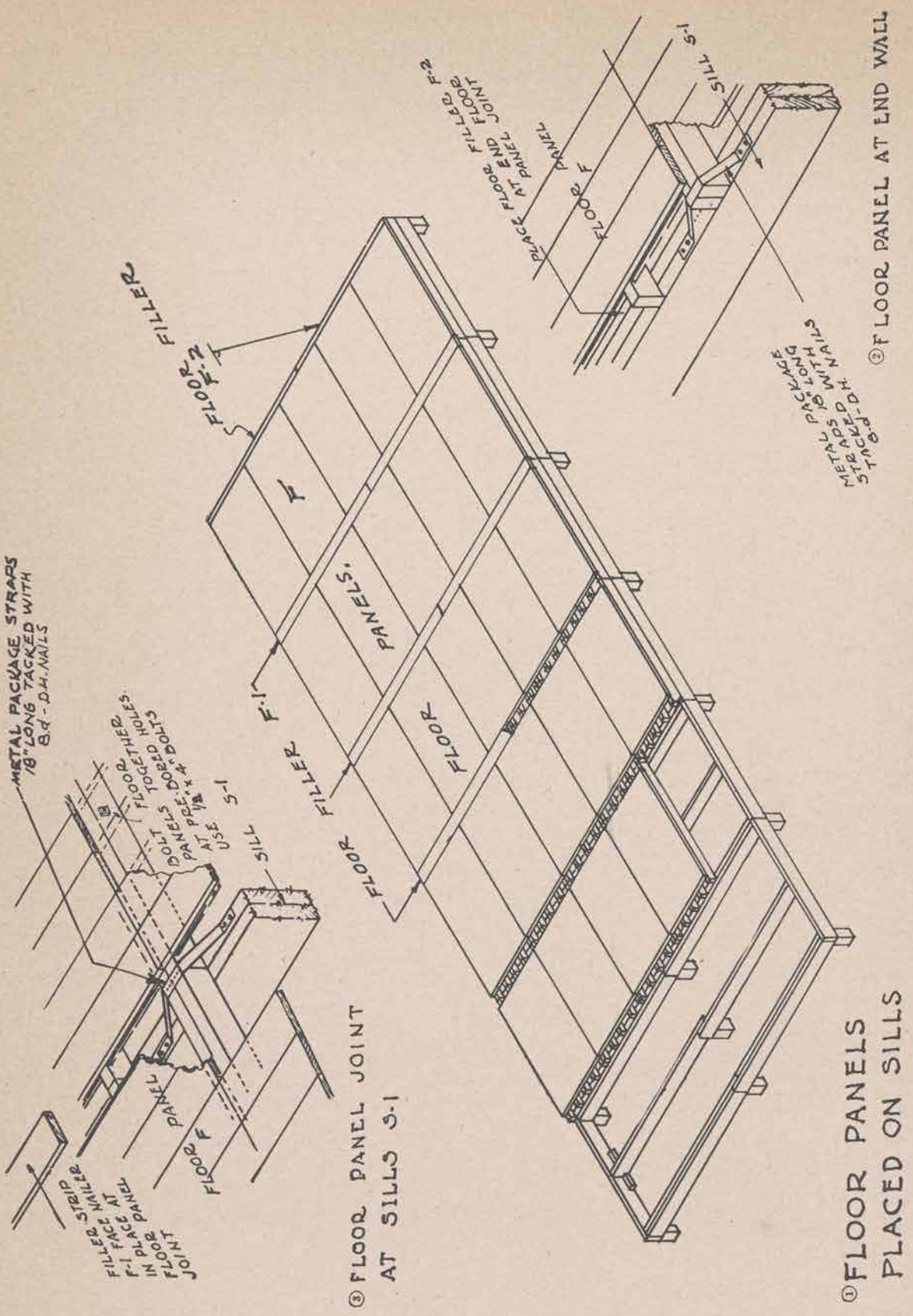


Figure 8. Floor panels.

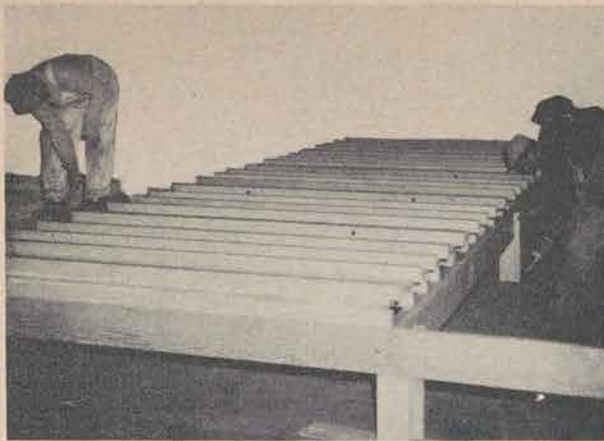


Figure 9. Bolting floor panels into one 8- by 20-foot section.



Figure 10. Lowering assembled floor section.

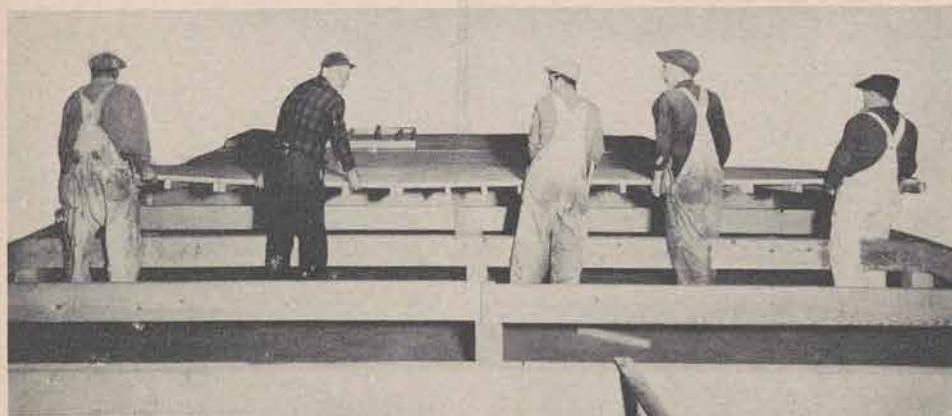


Figure 11. Shifting assembled floor section into place.



Figure 12. Floor straps in place.

5. Walls (refer to figs. 13, 14, and 17)

a. As side wall panels "W-1," "W-2" and "W-3" are unpacked, apply bottom plates H-1, H-2 plates to lower end of studding of each panel, using 16d common nails (see fig. 13).

b. Place at corner of building panel "W-1" of side wall and panel "W-3" of end wall, nail-

ing to finished floor through bottom plate, using 20d double-head nails 12 inches on center, as is shown on plans. Nail through contacting stud of panel "W-3" into stud of panel "W-1," using 20d double head nails 12 inches on center as shown on plans. Be careful to properly place panel "W-1" of the side wall, allowing space for insertion of filler "B-4" (see fig. 17).

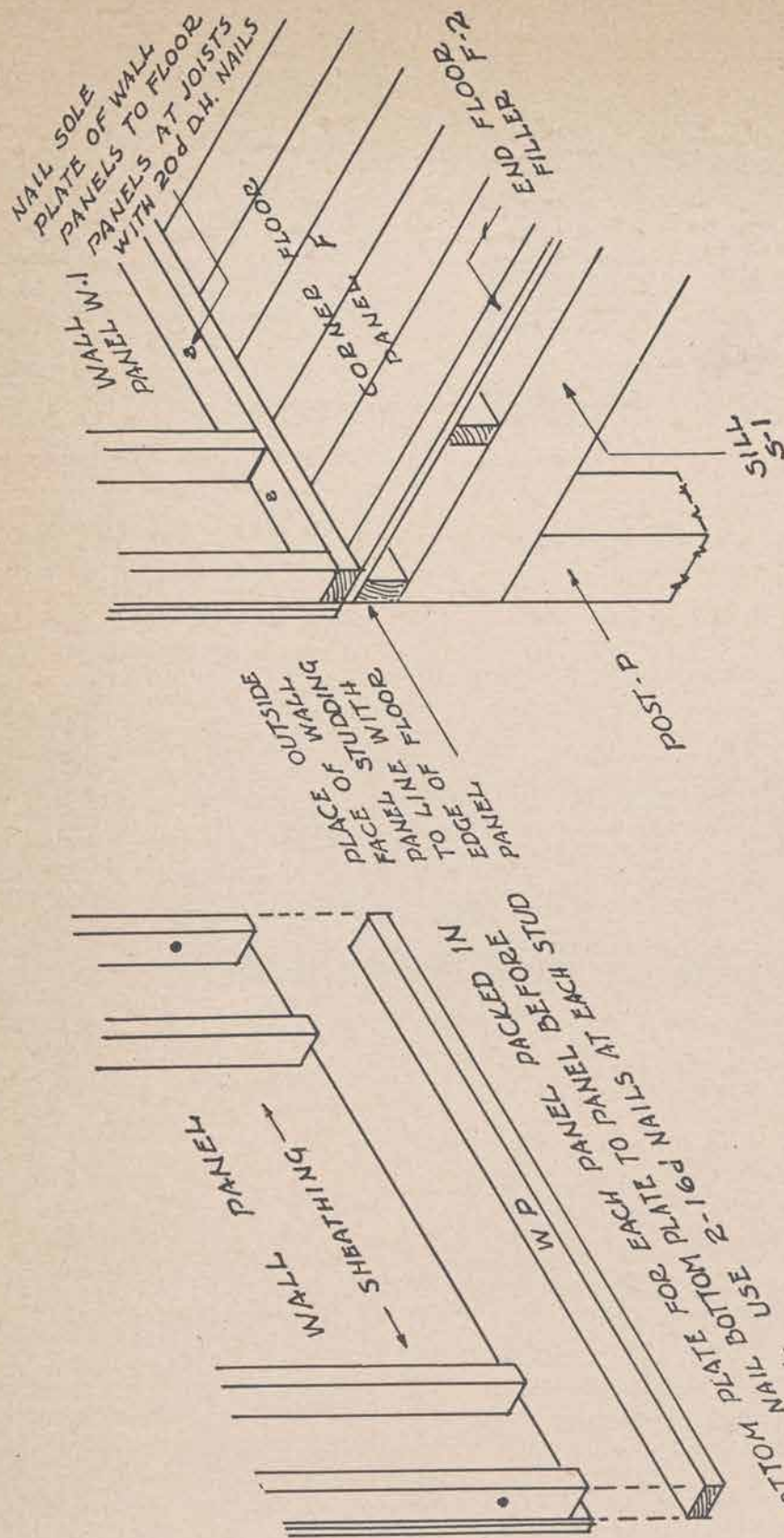


Figure 14. Location of first wall panel.

Figure 13. Wall panel.

c. Place one panel "W-2" of the side wall, affixing same as described above, bolting panel "W-2" through studding to panel "W-1," using 4-inch bolts and two washers.

d. Place panel "W-2" of the end wall and affix same in place with nails and bolts in ac-

cordance with detail.

e. Leave opening of 3 feet 2 inches from outside edge of studding, for doorway.

f. Erect another panel "W-2" of the end wall, maintaining the 3-foot 2-inch opening, nailing same through toe plate to finished floor.



Figure 15. Erecting three corner panels.

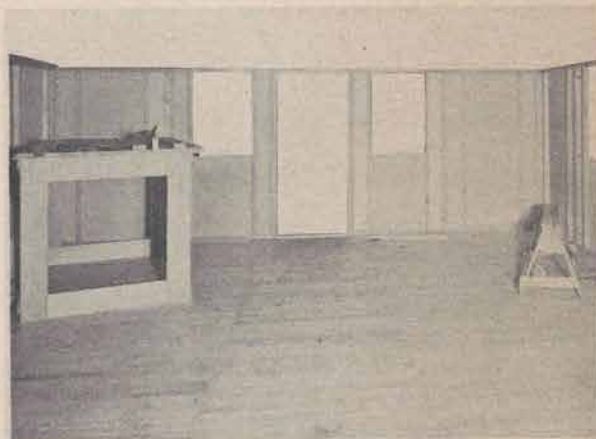


Figure 16. End wall panels erected.

g. Place panel "W-3" of the end wall, and panel "W-1" of the side wall opposite the first panels erected. Fasten same to finished floor and together as described above.

h. Install along both sides of building all side wall panels, placing same and fixing in place as shown by detailed drawings. Install end wall panels, leaving 3-foot 2-inch door openings, thus completing all building walls except doorways.

i. Place door jambs "D-1" and header "D-2," nailing same in place with 10d common nails, as is shown on drawings (see fig. 10).

j. Apply top plate "G" on side walls of building, starting with 5-foot piece and continuing with 8-foot lengths, using 3-foot length as last piece; nail in place using 16d double-head nails placed in areas removed from roof panel rafter members location—note drawing details (see fig. 17).

6. Gable (refer to fig. 21)

Place gable panels on one end of building. Fasten gable panels to the top plate of the end

wall, using 16d double-head nails as is shown on drawing. Bolt panels together with 4-inch bolts (two washers each), as shown.



Figure 18. Gable end ready for erection.



Figure 19. Erection and bolting of gable end.

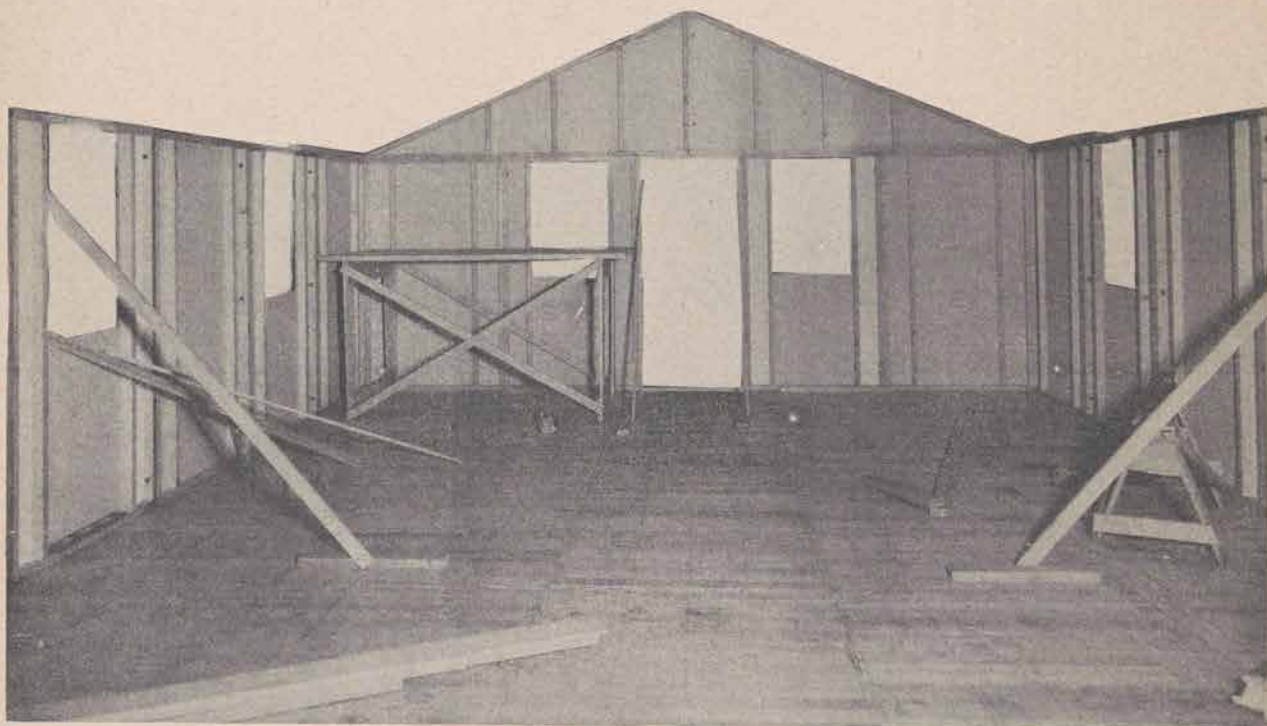


Figure 20. End gables and side wall panels completely erected and ready for roof panels.

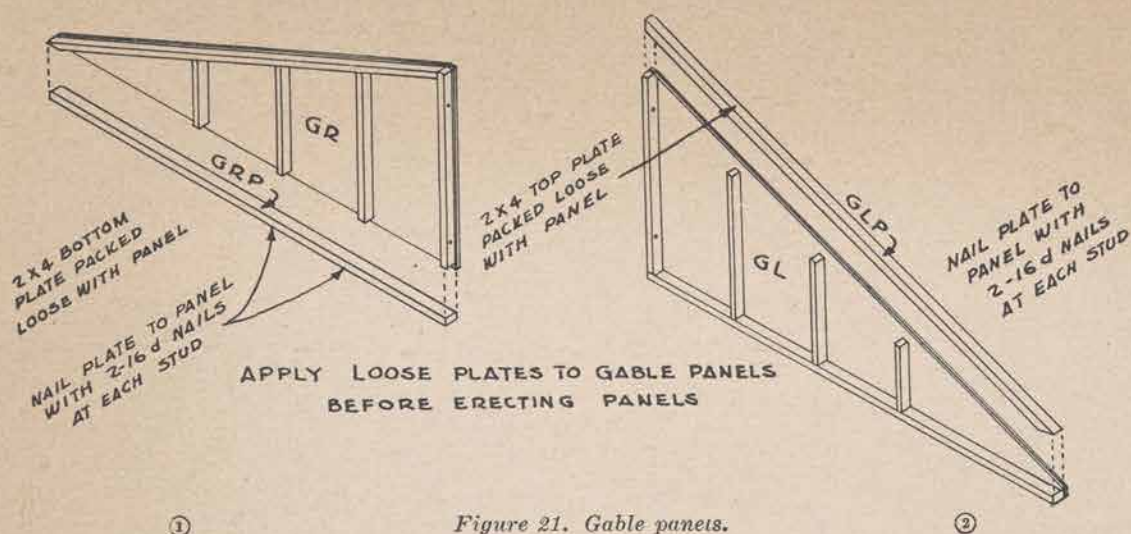


Figure 21. Gable panels.

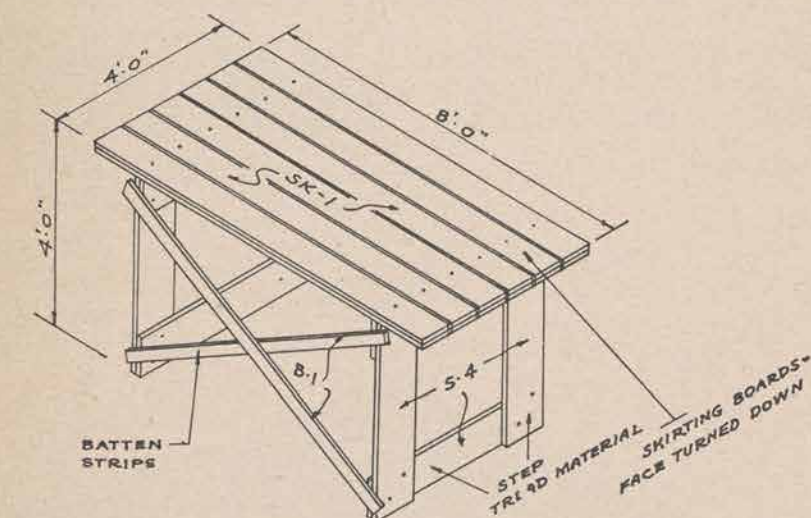


Figure 22. Scaffold platform for erection of roof.

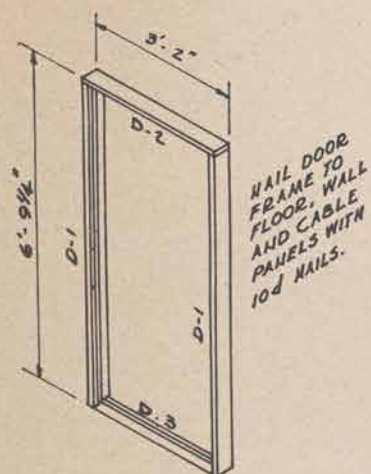


Figure 23. Door frame assembly.

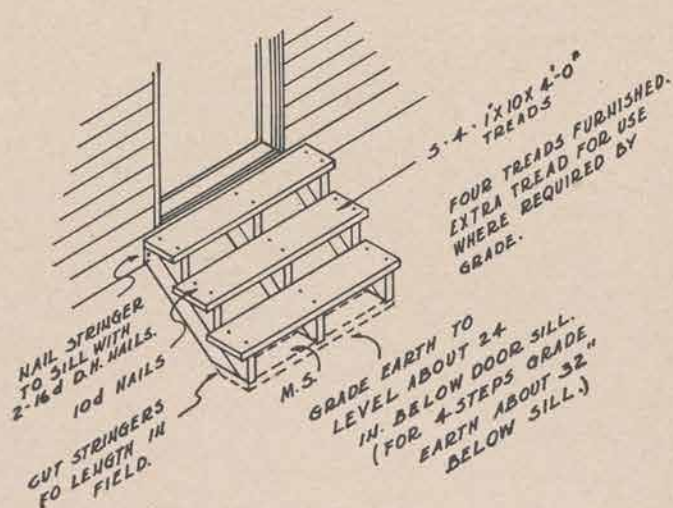


Figure 24. Step assembly.

7. Roof (refer to figs. 26 and 34)

a. Start placing roof panels, working from the erected gable, placing one piece of ridge

"RB-3." Insert bolts with washers for holding opposite roof panels and ridge board in place (see fig. 26).



Figure 25. Erection of first two roof panels.

b. Fix end roof panels to gables as is shown on detailed drawing, using 20d double-head nails. Be sure to see that gable panel is not pulled out of square and that roof panel is in proper position at side wall top plate.

(1) Erect scaffold platform as shown on figure 9 before starting to assemble roof panels.

(2) Use temporary bracing to hold walls in place as is shown on figure 12.

(3) Place brace under ridge board "RB-3"

as shown to keep ridge in line until truss ties are in place to support the roof section.

c. When four roof panels, two on each side of building, are in place, insert lower chord members T-1, at the first 4-foot point and fasten to the side wall panels with a T-4 and T-5. The T-4 and T-5's should be on opposite sides of the T-1 and in reverse on the opposite end of the T-1. Next nail T-2 members to lower chord member "T-1" and to roof panel rafter member adjacent to ridge. Apply collar tie "T-6" as is indicated in drawing (see fig. 34).

Figure 26. Erection of roof and gable panels.

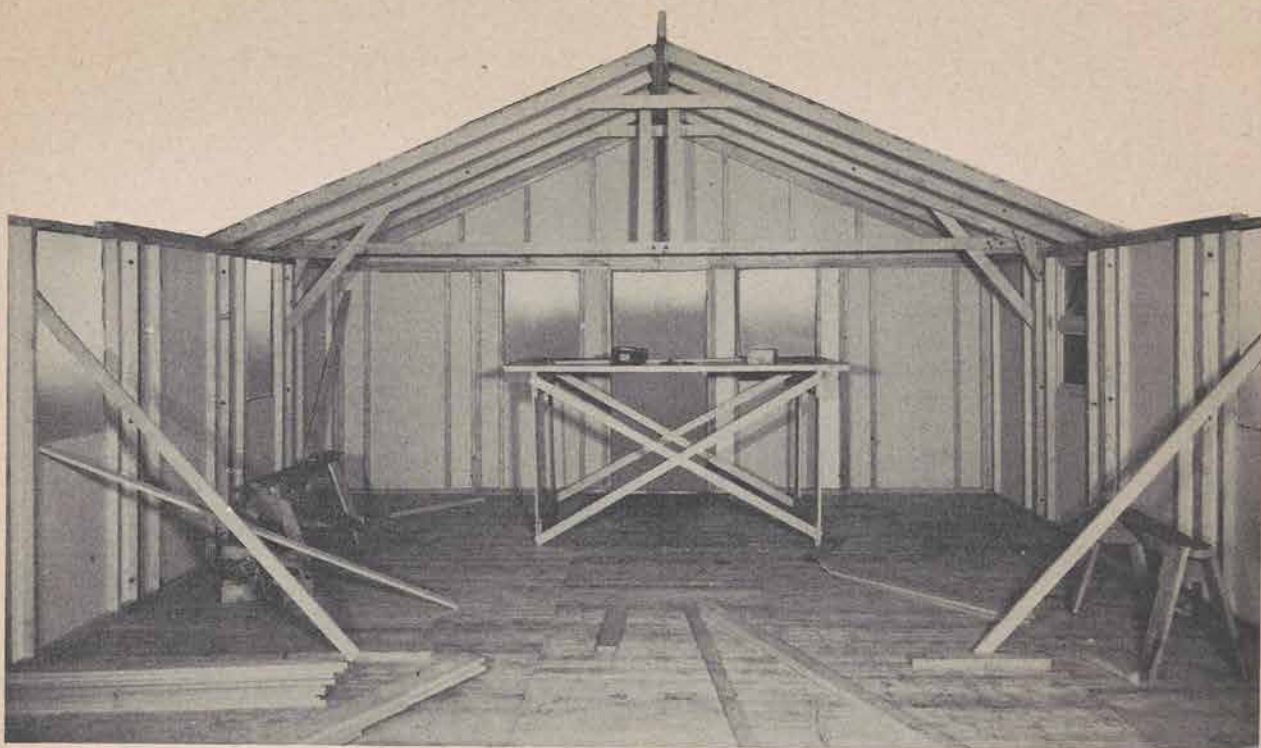


Figure 27. Four roof panels in place showing T-1 installed and scaffold platform made from step material.

d. When three pairs of roof panels are in place, insert lower chord members "T-1" and "T-4." Next nail "T-2" members to lower

chord member "T-1" and to roof panel rafter member adjacent to ridge. Apply second collar tie "T-6" to intermediate rafter (see fig. 34).



① Figure 28. Detail of connections at T-1, T-4 and T-5. ②

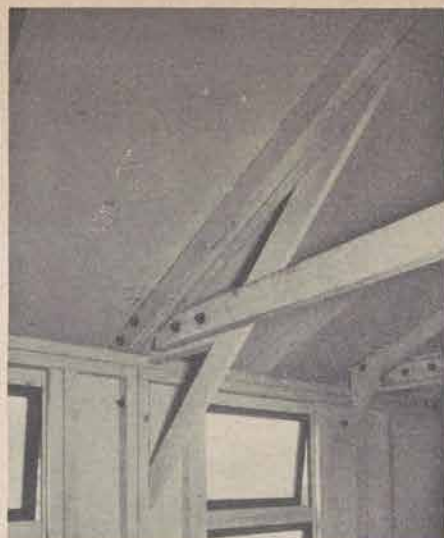


Figure 29. Detail of connections at T-1, T-3, and T-4.



Figure 30. Applying T-4 and eave board.

Figure 31. Detail of connection at T-1, T-2, and brace G.



Figure 32. Detail of tie 6.

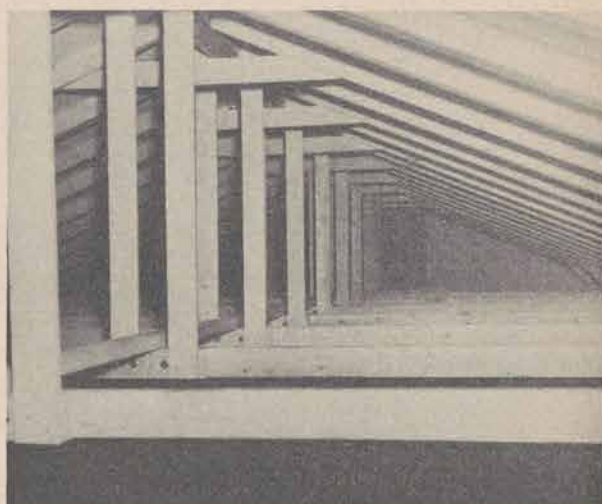
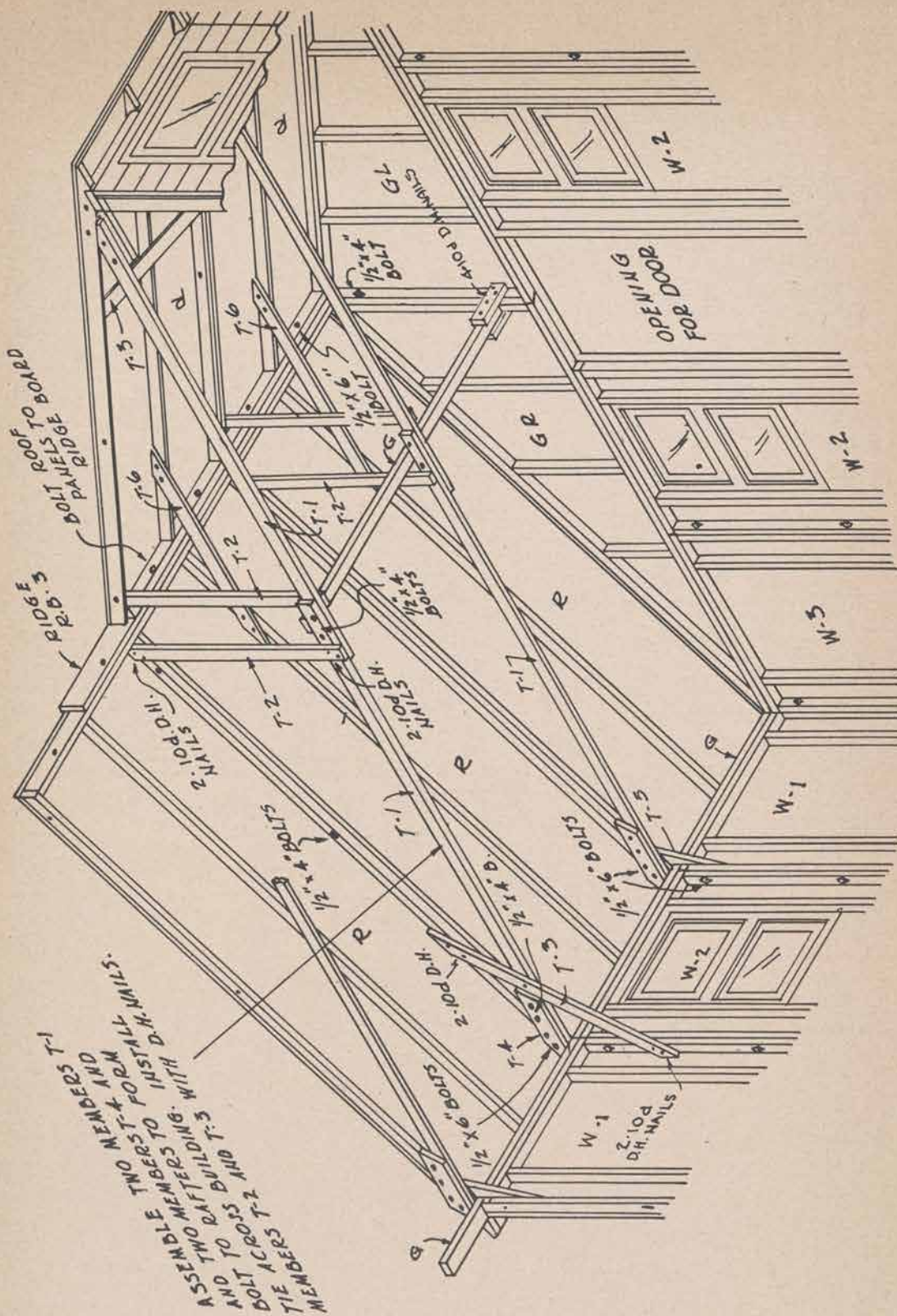


Figure 33. View of completed roof framing.



TEMPORARY WALL, GABLE AND RIDGE BRACING IS NOT SHOWN ABOVE BUT DO NOT REMOVE UNTIL THE ROOF STRUCTURE ABOVE IS COMPLETELY ASSEMBLED. INSTALL WIRE SUPPORTS G AFTER ALL TRUSSES HAVE BEEN ERECTED

Figure 34. Roof assembly (interior view).

e. Follow through with the erection of the entire roof structure in the sequence indicated above.

f. Place other gable panels before installing last section of roof.

8. Electric String Support

a. Install the 2- by 4-work electric string support "G" the full length of building in place and manner as is shown on detailed drawings. Nail securely, using double-head nails.

b. Place soffit board "C" at building caves; apply by nailing with 8d nails.

c. Apply skirting, "SK-1," "SK-2," and "SK-3," around building.

d. Apply corner filler "B-4,"

e. Apply gable filler and rake board "RK" to gables; nail with 10d nails.

f. Apply batten strips "B-1," "B-2," and "B-3," over panel joints.

9. Roofing

a. Apply roll roofing; run roofing the length of the building starting at eaves. Nail securely. Apply roofing with both nails and cement, allowing 3-inch lap. Allow 1½-inch projection of roofing at building ends over rake board to be covered by 1- by 2-inch fascia strip, "RK-B."

b. When roll roofing is completed on both sides of the ridge as instructed above, civer ridge with the required width of roofing nailed and cemented in order to provide watertight ridge cap.

c. Apply 1- by 2-inch fascia strip "RK-B" on building ends to cover ends of roofing.

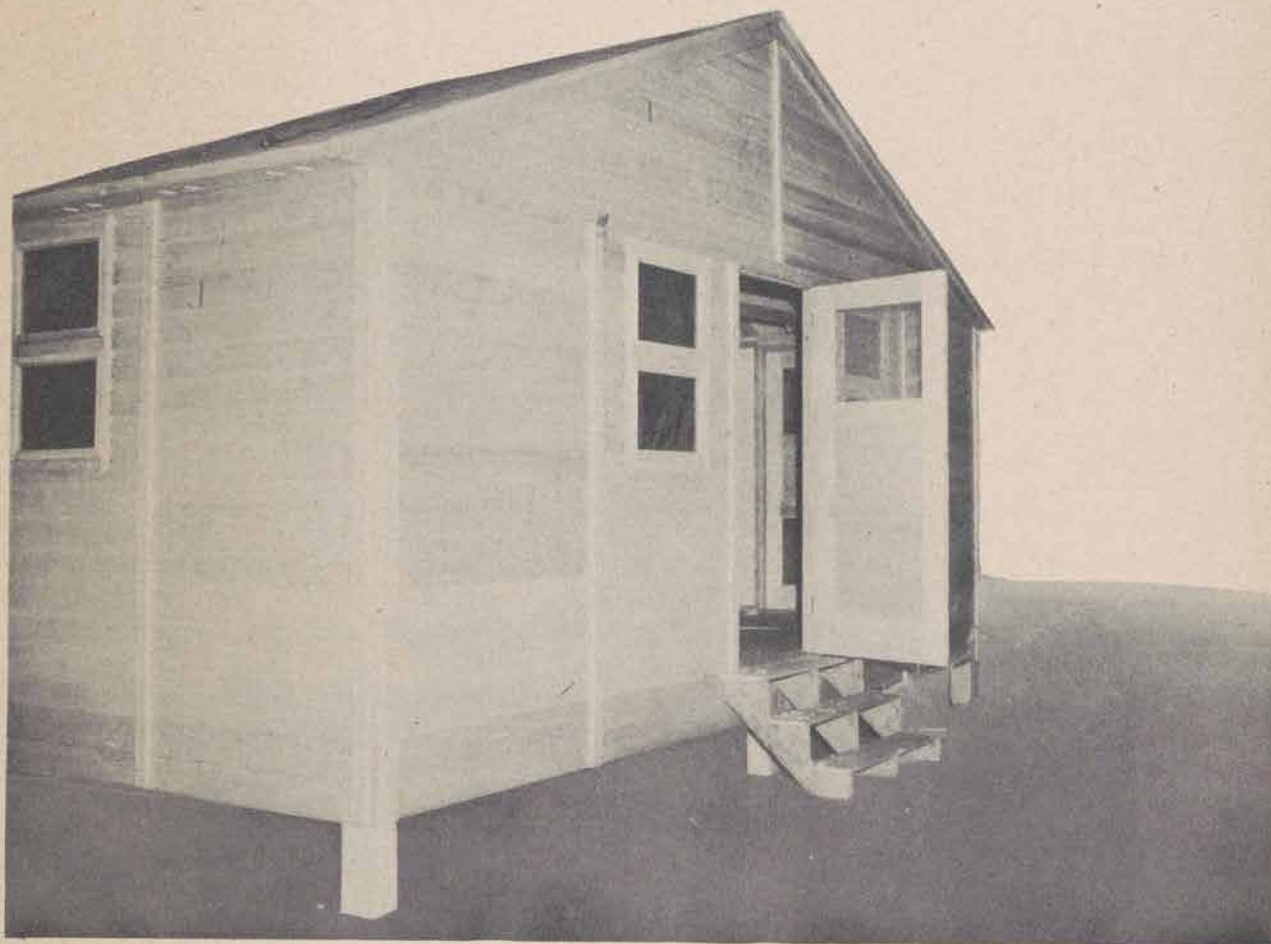


Figure 35. Completed end of building.

10. Miscellaneous

a. Install steps, cutting stringer "S-3" to required length. Apply step boards "S-4" (see fig. 11).

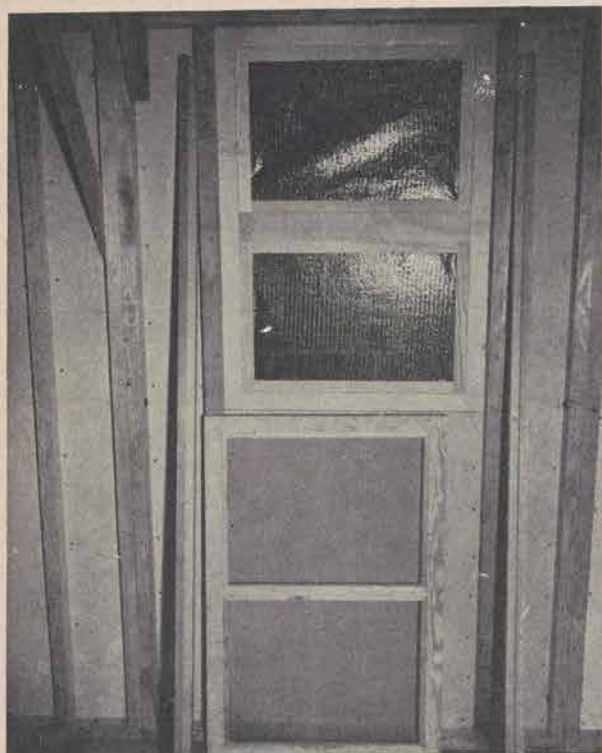


Figure 36. Window installed and screening ready for erection.

b. Install window screens, using screen slides nailed to adjacent studding with 8d casing nails. Apply screen hook and eyes.

c. Hang door and apply hardware; all in accordance with detailed drawing.

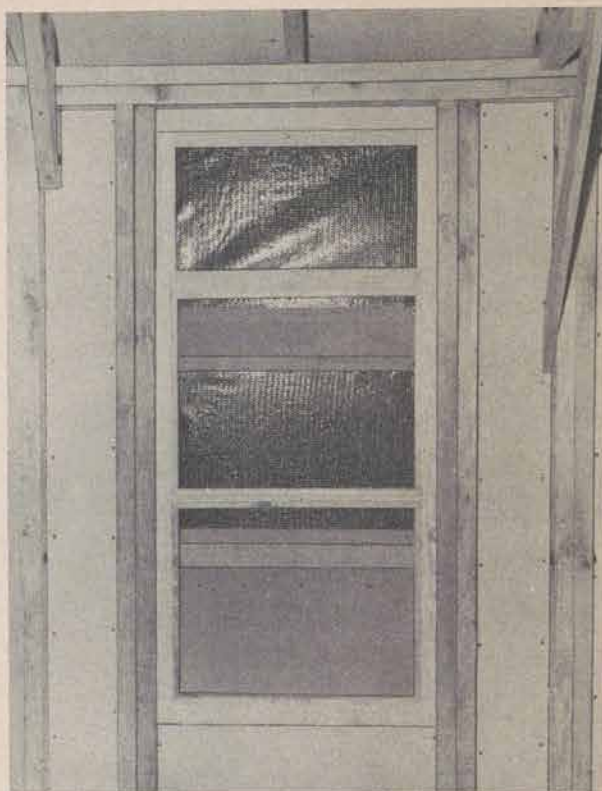


Figure 37. Screens installed.

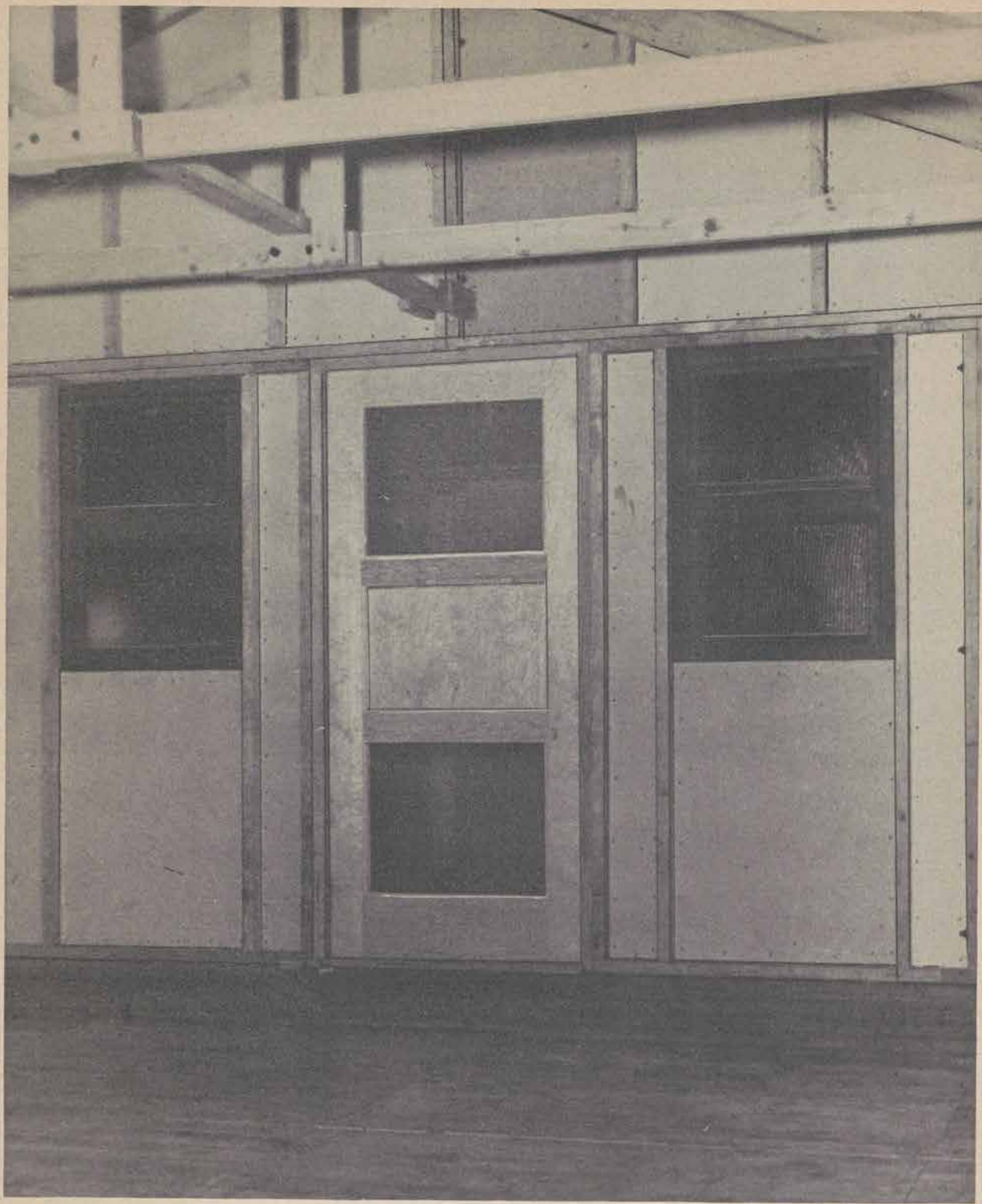


Figure 38. Interior view of completed end of building.

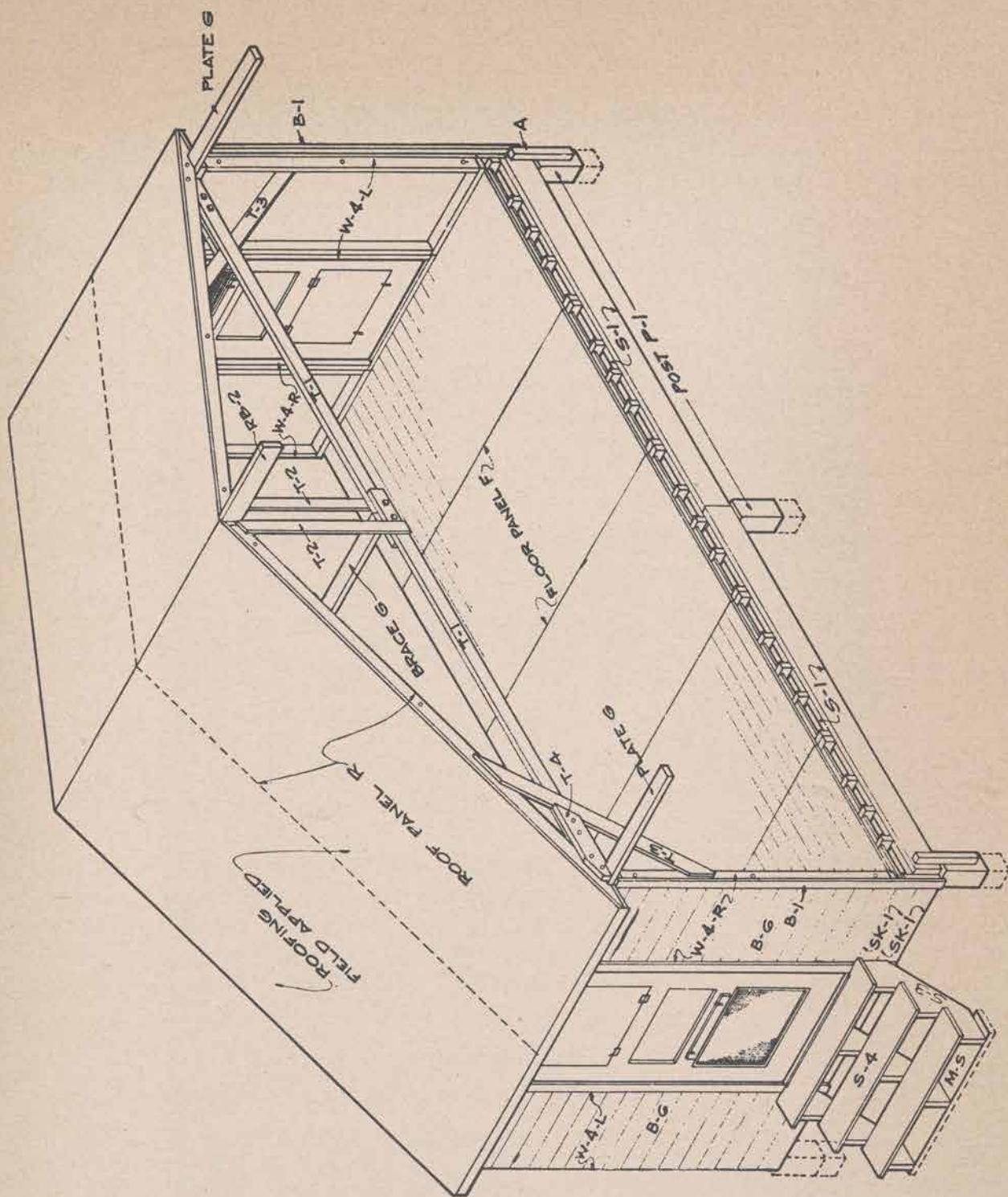


Figure 39. Isometric of "C" building unit.

11. Additional "B" Units

Additional B Units where required and furnished are erected as described above under the various steps.

12. Additional "C" Units (see fig. 14)

a. Additional "C" units when required and furnished are erected as described above under the various steps except for paragraph 6 above.

b. The wall panels are marked W4L and W4R and should have the bottom plate H-3 nailed into position.

c. When the panels have been erected into position the doorhead D-4 should be nailed to the panel on each side and sill, D-5 nailed to the flooring.

d. Apply batten strips B-5 over door with B-6 at sides and hang door similar to those on ends of building.

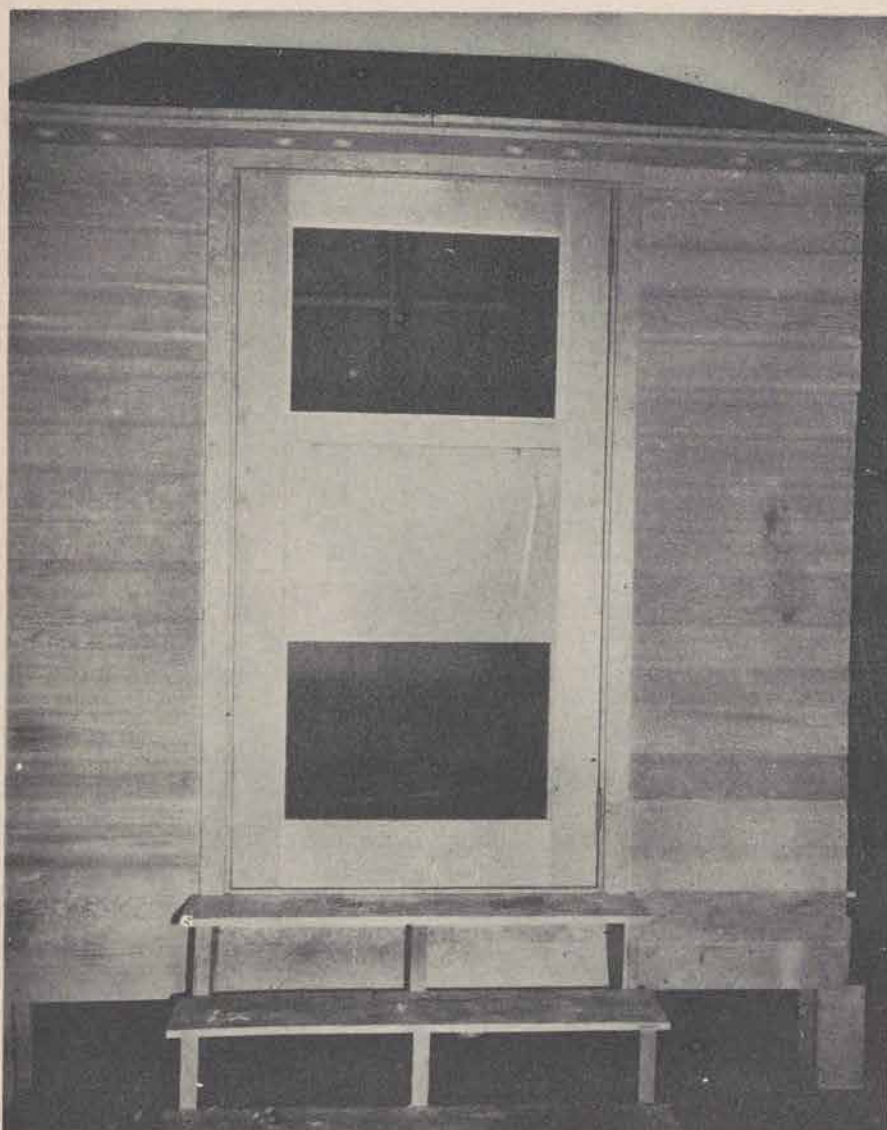
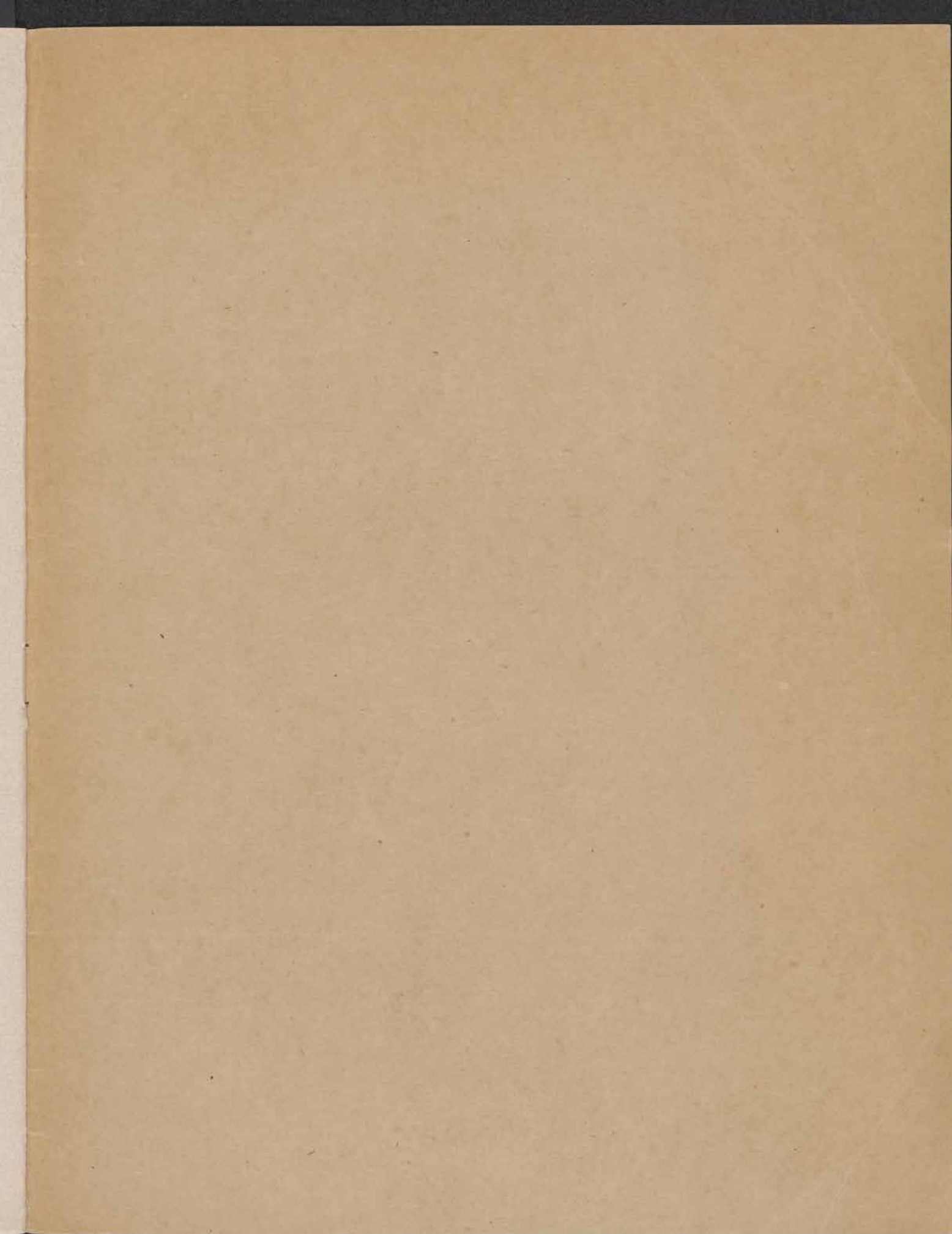


Figure 40. Completed door in "C" unit.

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